

**SECTION 01400**  
**QUALITY ASSURANCE**

**GENERAL**

**1.1 DESCRIPTION**

- A.** This section specifies the general requirements for quality assurance and quality control including source of supply and quality of materials, acceptance testing by the Owner, control testing by the Contractor, off-site inspection, inspection and use of local materials, inspection of proportioning plants and coordination of finishes.
- B.** Quality Assurance Program: The Contractor is responsible for controlling the quality of Work including work of its Subcontractors and suppliers and for assuring that the specified quality is achieved. The Contractor, Subcontractors and suppliers shall establish, maintain and implement a written Quality Assurance Program meeting the requirements of U. S. Department of Transportation Federal Transit Administration Quality Management System Guidelines (FTA-PA-27-5194-12.1 or most recent edition). The Contractor shall ensure their Quality Assurance Program includes a responsibility to audit themselves plus all subcontracts, fabricators, and suppliers. The Contractor shall note that the MBTA reserves its right to also perform audits. The Program shall be tailored to the scope and complexity of the Work and shall include implementing procedures and inspection forms equal to or more detailed than those included at the end of this section. Subcontractors, fabricators, or suppliers may use the Contractor Quality Assurance Program in lieu of developing their own. If they choose to use the GC's program (in whole or in part) that decision must be documented in writing to the MBTA. If they choose to use their own pre-established QC program, that must also be documented in writing. In the latter case, the Contractor remains responsible for their quality, and the GC's Quality Assurance Program shall include processes necessary to ensure the Contractor is adequately overseeing the work of the subcontractors, fabricators, or suppliers.
- C.** The overall administration of the Quality Assurance Program shall be vested in a responsible section of the Contractor's organization. This section shall contain a QC Organization headed by an on-site QC Manager who has clear access to top-level management and to Subcontractors' officers responsible for the execution of the Subcontractor's QC Program. The QC Manager's **sole duty** is to manage and administer the QC Program. The QC Manager shall have at least five (5) years' experience in implementing a quality control program on construction projects of similar size, scope and complexity.
- D.** The QC Organization shall be staffed by technically competent personnel with freedom to make decisions without pressure or bias and shall have sufficient authority to ensure that quality requirements are consistently maintained. The Quality Assurance Program shall also describe the roles and responsibilities of other Contractor personnel (i.e. field engineers,

superintendents, foremen, etc.) in fulfilling the requirements of the Contractor's Quality Assurance Program.

## **1.2 SUBMITTALS**

- A.** The Contractor shall submit within three weeks of the Notice to Proceed the Quality Assurance Program to be used on the project by the Contractor and Subcontractors. The resume of the Contractor's Quality Control Manager shall be included with the submittal. In addition, this submittal shall include the Contractor's organization chart and a statement of Roles and Responsibilities in regards to implementing the Quality Assurance Program. Changes to the Quality Assurance Program shall be submitted for approval prior to implementing the changes.
- B.** The Contractor shall submit the name, address, and qualifications, together with the scope of proposed services, of proposed inspection or testing firms to the Owner for approval at least 30 days prior to the scheduled commencement of any work involving such inspection or testing.
- C.** Test Reports - Within five days after completion of testing performed by or for the Contractor, submit test results to the Owner. The Contractor shall identify the test reports to be submitted as required in Section 01300. Test reports shall be identified with the information specified for samples in Section 01300 and additionally, the name and address of the organization performing the test, the date of the tests and a signature of an authorized representative attesting to the validity of the test results.

## **1.3 DELIVERY, STORAGE, AND HANDLING (Not Applicable)**

## **1.4 QUALITY ASSURANCE**

- A.** Source of Supply and Quality
1. If the Owner so desires, materials will be approved at the source of supply before delivery.
  2. Unless otherwise stipulated the Contractor shall furnish all materials required for the Work specified in the Contract, and said materials shall meet the requirements of the Specifications for the kind of Work involving their use.
  3. Unless otherwise provided, only new and first quality materials conforming to the requirements of the Specifications and approved by the Owner shall be used in the work, except for material used by the Contractor for his convenience and which is not to be permanently incorporated in the work.
  4. After testing if the sources of supply that have been approved do not furnish a uniform product or if the product from such sources proves unacceptable at any time, the Contractor shall, at no additional expense to the Owner, take any and all steps necessary to furnish acceptable materials.
  5. If approved by the Owner, materials such as crushed stone, gravel borrow, or ordinary borrow, shall be sampled at the source and, if

satisfactory, given preliminary approval for use. Samples shall be taken by or in the presence of the Owner. The Contractor shall furnish such facilities as the Owner may require for collecting and forwarding samples to the Owner's Laboratory. Samples shall be furnished without charge and with any shipping charges prepaid. However, preliminary approval by the Owner does not relieve the Contractor of the responsibility for placing satisfactory material in the Work as determined by subsequent samples taken at the source or on the Contractor site, prior to the material being incorporated into the Work and if the Contract site samples test satisfactorily the material will be considered to meet the Contract requirements as to quality. If such sampling and testing reveal that the material is unsatisfactory it shall be removed from the Work or blended in with such other materials so that an acceptable material will be produced. Removal and blending of such material shall be done by the Contractor without additional compensation.

**B. Rights of Access**

The Owner may make visits at the proportioning plant or source of supply to audit or inspect the production of material, or the manufacture of products. These visits, however, will not be undertaken until the Owner is assured of the cooperation and assistance of both the Contractor and the material producer or manufacturer. The Contractor shall assure that "Rights of Access" clauses are contained in the purchase document with the producers of materials or manufacturers of products allowing the Owner, or an authorized representative, to have free entry at all times to such parts of the off-site plant concerned with the manufacture or production of the materials. Adequate work facilities at the off-site plant, shall be furnished free of charge to the Owner for its use during audits or inspections. The Owner assumes no obligation to inspect materials at the source of supply. The responsibility of incorporating satisfactory materials in the Work rests entirely with the Contractor, notwithstanding any prior inspections or tests.

**C. Acceptance Testing**

1. Acceptance testing is the testing of materials and workmanship that can be performed by the Owner for acceptance of the completed Work. The Owner will perform acceptance testing of materials and workmanship in accordance with the Contract Documents and at the frequency determined by the Owner. The Owner reserves the right to perform additional testing at any time to determine conformance with the Contract requirements.
2. Acceptance testing by the Owner is not to be considered a replacement for control testing conducted by the Contractor or a manufacturer producing materials for the Contract. Acceptance testing will be at the expense of the Owner.

**D. Hold and Notification Points**

The Contractor will be required to notify the Owner or other Authorities having Jurisdiction when certain activities will be performed. These notifications and time requirements will be detailed in the various sections of the Specification. There will be two types of notifications as follows:

**Hold Point** - A point in a function or process in which the Owner performs a planned inspection and beyond which work may not proceed without prior approval from the Owner.

**Notification Point** - A point in a function or process in which the Owner may perform an inspection. The Owner must be notified at this point and work may proceed.

Failure to provide sufficient notice or violating a "Hold Point" may result in the subsequent rejection of the work. Any correction of the work will be at the expense of the Contractor.

#### **E. Control Inspection and Testing**

1. Control inspection and testing are the testing or inspection of materials prior to their delivery from a manufacturer, or during construction. Examples of such testing are soils tests before and after compaction, concrete tests during placement, except for concrete strength tests that the Owner will perform, and other tests and inspections specified in the various sections of the Specifications to ensure compliance with Contract requirements. The Contractor shall assume full responsibility for control inspection and testing and give sufficient notice to the Owner to permit the witnessing of the inspections or tests. Control inspection and testing shall be at the expense of the Contractor and may be performed by independent firms.
- 2 **Notification Point** - The QC Manager shall make periodic site inspections of the work areas with the construction supervisors to assure that there are no conditions that would affect the quality of the installation or product. Deficient areas shall be identified, causes identified and deficient conditions corrected. Inspections shall be documented on the "General Inspection Form" contained at the end of this section. The Contractor shall notify the Owner in advance of the periodic inspections to allow participation by the Owner.
- 3 The Quality Program shall include a plan listing minimum inspections/testing as required by the Project Specifications and referenced codes. The Contractor's QC Manager shall develop and continuously update this plan as required. The plan will reference the applicable specification section, responsible party, Hold/Notification Points, and standard inspection/test forms. The plan will be submitted at the same time as the Quality Assurance Plan and updated as required.

#### **F. Coordination of Finishes**

1. Within a reasonable time after Award of Contract, and unless otherwise included in the Contract Drawings the Owner will provide a color coordination schedule designating colors and textures of finish materials in areas where required.
2. It is the intent of the Contract Documents to produce harmony of matching finish, texture, and color throughout various components of the Project.
3. Work coordination of like materials to achieve the above-mentioned intent is required by submitting to the Owner for approval pilot samples of acceptable ranges of color variation and of finish textures. Coordination is especially required for concrete surfaces: metals including anodized aluminum; glass; sealants; hardware; floor, wall and ceiling coverings; painted surfaces; equipment items; and paving of dry nature.
4. Upon obtaining the Owner's acceptance of any range of colors and textures, furnish the Owner with one record set of samples, or more if required, and keep sufficient sets for use in coordinating conformity with this record set.

#### **PART 2 - PRODUCTS (Reserved)**

#### **PART 3 - EXECUTION (Reserved)**

#### **PART 4 - MEASUREMENT AND PAYMENT**

No separate measurement or payment will be made for work required under this section. All costs in connection therewith will be considered incidental to the item or items of work to which they pertain.



**HIGH STRENGTH BOLTING CHECKLIST  
PRE-INSTALLATION VERIFICATION TEST  
ROTATIONAL CAPACITY TEST**

<b>DATE OF TEST:</b> _____	<b>CONTRACTOR:</b> _____
<b>CONTRACT NO.:</b> _____	<b>PAY ACTIVITY:</b> _____
<b>SUBMITTAL:</b> _____	<b>TEST REPORT NO.:</b> _____

**TEST CONDUCTED USING:**    ☐ **SKIDMORE**                      **SERIAL NO.:** \_\_\_\_\_                      **CAL.**  
**DATE:** \_\_\_\_\_

☐ **SOLID PLATE**

**TORQUE WRENCH:**                      **SERIAL NO.:** \_\_\_\_\_                      **CALIBRATION DATE:** \_\_\_\_\_

**\*Test All Lots and All Combinations of Bolt / Washer / Nut Assemblies as Shown on Drawings per RCSC Specifications and AREMA Requirements.\***

**\*Bolts that are too short to test in a Skidmore-Wilhelm Calibrator shall be tested in a steel joint. The tension requirements of Table 6 need not apply. The maximum torque requirement shall be computed using measured bolt tension equal to minimum rotational capacity test tension (Table 6)\***

**BOLT SIZE TESTED** \_\_\_\_\_ **X** \_\_\_\_\_ **Grade** \_\_\_\_\_

DESCRIPTION	MFG.	MARKING	LOT NO.	FINISH
BOLT				
NUT				
WASHER				

**Inspect Bolts and Nuts for Proper Lubrication and for Damage. Weathered / Rusted Bolts or Nuts  
Shall Be Cleaned  
and Re-Lubricated, Except Tension Control Bolts, Prior to Testing. Field Lubricating TC Bolts is Not  
Permitted.**

**REFERENCE TABLES**

**TABLE 1**  
***MINIMUM BOLT PRETENTION***



**HIGH STRENGTH BOLTING CHECKLIST  
PRE-INSTALLATION VERIFICATION TEST  
ROTATIONAL CAPACITY TEST**

**TABLE 2**

***REQUIRED ROTATION FROM SNUG-TIGHT CONDITION FOR TURN-OF-NUT  
PRETENSIONING***

**TABLE 3**

***MINIMUM BOLT PRETENTION FOR PRE-INSTALLATION VERIFICATION (Minimum  
Pretension x 1.05)***

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## HIGH STRENGTH BOLTING CHECKLIST PRE-INSTALLATION VERIFICATION TEST ROTATIONAL CAPACITY TEST

**TABLE 4**

**MAXIMUM PERMITTED TORQUE CALCULATION TABLE**

*Maximum Permitted Torque = Torque is less than or equal to 0.25 \* Measured Bolt Tension (lb)*

*\* Bolt Diameter (ft)*

	BOLT DIAMETER (ft)	X	MEASURED BOLT TENSION (lbs)	X	0.2 5	=	MAXIMUM PERMITTED TORQUE (ft-lbs)
TEST 1	ft	X	lbs	X	0.2 5	=	ft-lbs
TEST 2	ft	X	lbs	X	0.2 5	=	ft-lbs
TEST 3	ft	X	lbs	X	0.2 5	=	ft-lbs

**TABLE 5**

**ROTATIONAL CAPACITY TEST REQUIRED ROTATION**

- 2/3 rotation (240deg), for bolt lengths that are 4 times the diameter or less.
- 1 rotation (360deg), for bolt lengths that are over 4 times diameter but no more than 8x.
- 1-1/6 rotation (420deg), for bolt lengths that are greater than 8 times diameter.
- For lengths over 12 times the diameter, the test is not applicable.

**TABLE 6**

**MINIMUM REQUIRED ROTATIONAL CAPACITY TEST TENSION (Minimum Pretension x 1.15)**





# HIGH STRENGTH BOLTING CHECKLIST PRE-INSTALLATION VERIFICATION TEST ROTATIONAL CAPACITY TEST

**BOLT SIZE TESTED**

**X**

**GRADE**

**TEST REPORT NO.**

(Matches Cover Page)

## TEST RESULTS

Note: "Snug Tight Condition is the tightness attained with a few impacts of an impact wrench or the full effort of an ironworker using an ordinary spud wrench to bring the plies into firm contact." - RCSC	<b>TEST 1 RESULT</b>	<b>TEST 2 RESULT</b>	<b>TEST 3 RESULT</b>
<b>MINIMUM PRETENSION REQUIRED (kips)</b> FROM TABLE 1			
<b>RECORD TORQUE at MINIMUM PRETENSION (ft. lbs.)</b>			
<b>RECORD TENSION AFTER _____ ROTATION</b> REQUIRED ROTATION FROM TABLE 2			
<b>MINIMUM REQUIRED BOLT PRETENSION FOR PRE- INSTALLATION VERIFICATION</b> FROM TABLE 3			
<b>TENSION AFTER ROTATION EQUALS OR EXCEEDS MINIMUM REQUIRED BOLT PRETENSION FOR PRE-INSTALLATION VERIFICATION</b> ( <i>Pass or Fail</i> )			
<b>DOES NOT EXCEED MAX PERMITTED TORQUE</b> CALC. TABLE 4 ( <i>Pass or Fail</i> )			
<b>ROTATIONAL CAPACITY TEST</b>			
<b>RECORD TENSION AFTER _____ ROTATION</b> REQUIRED ROTATION FROM TABLE 5			
<b>MINIMUM REQUIRED ROTATIONAL CAPACITY TEST TENSION</b> FROM TABLE 6			
<b>TENSION AFTER ROTATION EQUALS OR EXCEEDS MINIMUM REQUIRED ROTATIONAL CAPACITY TEST TENSION</b> ( <i>Pass or Fail</i> )			
<b>DISSASSEMBLE AND EXAMINE THREADS FOR SHEAR FAILURE, STRIPPING, OR TWISTING</b> ( <i>Failure Type or Pass</i> )			
<b>OVERALL TEST RESULTS</b> ( <i>Pass or Fail</i> )			

**COMPUTED TORQUE VALUE:** \_\_\_\_\_ (**Avg. of 3 Torque at Min.  
Pretension**)

**REQ. DEGREE OF ROTATION:** \_\_\_\_\_ (**Rotation Req. for Turn-of-Nut  
Install**)

**CONTRACTOR REPRESENTATIVE** \_\_\_\_\_ **DATE** \_\_\_\_\_

**MBTA INSPECTOR** \_\_\_\_\_ **DATE** \_\_\_\_\_

## NOTES:

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**HIGH STRENGTH BOLTING CHECKLIST  
PRE-INSTALLATION VERIFICATION TEST  
ROTATIONAL CAPACITY TEST**

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## CONCRETE PLACEMENT CHECKLIST

<b>CONTRACT NO.</b>	<b>CONTRACTOR:</b>		
<b>CONCRETE PLACEMENT NO:</b>	<b>SCHED. PLACEMENT DATE:</b>	<b>TIME:</b>	
<b>STRUCTURE:</b>	<b>ELEVATION FROM:</b>	<b>TO:</b>	
<b>PLACEMENT DATE:</b>	<b>START TIME:</b>	<b>FINISH TIME:</b>	
<b>TYPE MIX / MIX ID #:</b>	<b>EST. QUANTITY:</b>	<b>CY</b>	<b>ACTUAL: CY</b>
<b>PLACEMENT FOREMAN:</b>	<b>MBTA INSPECTOR:</b>		
<b>CONTRACT DOCUMENTS:</b>			
<b>REMARKS:</b>			

ITEM	Contractor QC Manager /Inspector	MBTA INSPECT OR	REMARKS
<b>A. <u>EXCAVATION</u></b>	<b>Initial Each Line Item</b>	<b>Initial Each Line Item</b>	
EXCAVATION AT REQUIRED ELEVATION?			
APPROVED BASE MATERIAL AS SPECIFIED?			
MATERIAL COMPACTED PER REQUIREMENTS?			
COMPACTION TESTING PER REQUIREMENTS?			
<b>B. <u>FORMWORK</u></b>	<b>Initial Each Line Item</b>	<b>Initial Each Line Item</b>	
DIMENSIONS PER PLANS / SHOP DWGS?			
ACCEPTABLE LINE AND GRADE? PLUMB?			
WATER STOPS/SEALS INSTALLED PER REQUIREMENTS?			
ALL CHAMFER IN PLACE?			
ADEQUATE BRACING?			
FORMS CLEAN AND FREE OF DEBRIS?			
<b>C. <u>REINFORCEMENT</u></b>	<b>Initial Each Line Item</b>	<b>Initial Each Line Item</b>	
RESTEEL CLEAN? EPOXY TOUCH UP AS REQUIRED?			
CORRECT RESTEEL SIZE / QUANTITY / LOCATION?			
RESTEEL SECURED? ADEQUATE SPACERS/CHAIRS?			
PROPER CLEARANCE BETWEEN RESTEEL & FORMS?			



## CONCRETE PLACEMENT CHECKLIST

RESTEEL MEETS SPECIFIED COVER?			
ANCHOR BOLTS, EMBED ITEMS SECURED?			
ANCHOR BOLT LAYOUT/LOCATION VERIFIED BY SURVEY AFTER SECURED?			
OTHER EMBEDS (Pipe, conduit, plates) INSTALLED PER PLAN or APPROVED DRAWINGS? YES / NO			

### CONTINUED OTHER SIDE

ITEM	Contractor QC Manager /Inspector	MBTA INSPECT OR	REMARKS
<b>D. PLACEMENT</b>	<b>Initial Each Line Item</b>	<b>Initial Each Line Item</b>	
METHOD (Pump, bucket, chute,etc)			
FORMS WET DOWN JUST PRIOR TO PLACEMENT?			
MASS PLACEMENT? IF YES, HEAT MITIGATION PLAN APPROVED?			
NUMBER OF CYLS REQUIRED			
ADDITIONAL TESTS REQUIRED?			
WATER ADDED BEFORE DISCHARGE? YES / NO			
IF YES: MEASURED? Y / N; MIXED MIN 30 REV Y / N?			
<b>E. CURING</b>	<b>Initial Each Line Item</b>	<b>Initial Each Line Item</b>	
<b>CURING BOX ON SITE?</b>			
<b>ADEQUATE CURING MATERIALS ON HAND?</b>			
<b>HOT/COLD WEATHER PRECAUTIONS TAKEN Y / N?</b>			
<b>CURING METHOD</b>			
<b>CURING TO BE MAINTAINED A MINIMUM OF 7 DAYS Y / N?</b>			
<b>OTHER:</b>			

### PREPLACEMENT CHECKS COMPLETE (SIGN BELOW)

A. EXCAVATION, B. FORMWORK, AND C. REINFORCEMENT ITEMS ARE COMPLETE)

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## CONCRETE PLACEMENT CHECKLIST

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CONTRACTOR QC Manager/Inspector  
DATE

---

MBTA Inspector  
DATE

**PLACEMENT CHECKS COMPLETE (SIGN BELOW)**  
**(D. PLACEMENT AND E. CURING ITEMS ARE COMPLETE)**

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CONTRACTOR QC Manager/Inspector  
DATE

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MBTA Inspector  
DATE

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## EXPANSION/EPOXY\* EMBEDDED ANCHORS INSTALLATION AND INSPECTION REPORT

CONTRACT NO.:

CONTRACTOR:

DATE:

ATTACHMENT LOCATION:

DRAWING/REV:

SUBMITTAL:

PAY ACTIVITY:

TYPE, SIZE, NUMBER OF ANCHORS:

### PREPLACEMENT CHECKS

INSPECTOR CHECKPOINTS	CONTRACTOR	DATE	MBTA	DATE
CONCRETE SURFACE				
ANCHOR HOLE LOCATIONS SURVERY AND MARKED				
EPOXY INJECTION SATISFACTORY				
TEMPERATURE RANGE SATISFACTORY				
TOURQUE TEST				
ANCHORS INSTALLED CORRECTLY				

TEST WRENCH ID: \_\_\_\_\_ CALIBRATION DUE DATE: \_\_\_\_\_

REMARKS:

***\*Use of adhesive anchors in either overhead or sidewall applications are prohibited without prior approval by MBTA Chief Engineer for Design and Construction***

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## FIELD COATING INSPECTION REPORT

CONTRACT NO.: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_ DATE: \_\_\_\_\_

LOCATION: \_\_\_\_\_

ITEM DESCRIPTION: \_\_\_\_\_

COATING DATE: \_\_\_\_\_ 1<sup>st</sup> ☐ \_\_\_\_\_ 2<sup>nd</sup> ☐ \_\_\_\_\_ 3<sup>rd</sup> ☐

AREA INSPECTED: \_\_\_\_\_

SUBMITTALS: \_\_\_\_\_ DRAWING/REV: \_\_\_\_\_

PAY ACTIVITY: \_\_\_\_\_

INSPECTIONS	CONTRACTOR	DATE	MBTA	DATE
SHELF LIFE/STORAGE TEMPS NOT EXCEEDED; UNOPENED ORIGINAL CONTAINERS WITH LABELS, BATCH NUMBER				
SURFACES TO BE COATED ARE CLEANED OF OIL, GREASE AND OTHER DETRIMENTAL MATERIAL				
TOUCH UP BARE OR ABRADED SURFACES WITH APPROVED COATING				
FIELD CONNECTIONS (WELD, BOLTING) SURFACES CLEANED AND PROFILED PRIOR TO PRIMER				
MATERIALS MIXED AND PREPARED TO MANUFACTURER(S) RECOMMENDATIONS				
APPLICATION TO MANUFACTURER(S) SPECIFICATIONS				
CURE TIME ACHIEVED PRIOR TO COATING				
COLOR AS SPECIFIED				
COATING THICKNESS (DFT)				
REQUIRED                      ACTUAL				
ENVIRONMENTAL RECORD				
SURFACE TEMP _____	HUMIDITY _____			
AMBIENT TEMP _____	DEW POINT _____			
SURFACE CONDITIONS _____				
WEATHER CONDITIONS _____				
REMARKS: _____				

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## GROUTING INSPECTION REPORT

CONTRACT NO.: \_\_\_\_\_ CONTRACTOR: \_\_\_\_\_ DATE: \_\_\_\_\_

LOCATION: \_\_\_\_\_

DRAWING/REV.: \_\_\_\_\_

SUBMITTAL: \_\_\_\_\_

DESCRIPTION OF  
INSTALLATION: \_\_\_\_\_

GROUT TYPE/ID: \_\_\_\_\_ PAY ACTIVITY: \_\_\_\_\_

INSPECTIONS	CONTRACTOR	DATE	MBTA	DATE
RELEASE OF ITEM FOR GROUT				
SURFACE PREPARATION COMPLETE				
SURFACE DAMP FOR REQUIRED TIME				
ALL VOIDS FILLED				
COLD WEATHER PROTECTION				
GROUT CURE COMPLETE	<input type="checkbox"/> MOIST <input type="checkbox"/> MEMBRANE			

### PRESSURE GROUT

RELEASE OF ITEM FOR GROUT	
EXCESS WATER REMOVED	
TENDONS GROUTED WITHIN 15 DAYS OF STRESSING	
GROUT PUMPED CONTINUOUSLY UNTIL CONSISTENT AT UPPER VENT (A STEADY STREAM OF GOOD GROUT BEFORE CLOSING)	
PRESSURE _____ psi HOLD TIME _____ BEFORE CLOSING _____	
REMARKS:	

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## MATERIAL RECEIVING INSPECTION REPORT

CONTRACT NO.:

CONTRACTOR:

REPORT NO.:

DATE:

QUANTITY:

SUBMITTAL NO.:

ACTIVITY NO.: *POTENTIALLY TIES TO PAY REQ.*

MANUFACTURER/SUPPLIER:

STORAGE LOCATION:

### RECEIVING INSPECTION REQUIREMENTS

REQUIREMENTS	SAT	UNSAT	N/A	REQUIREMENTS	SAT	UNSAT	N/A
MATERIAL CERTIFICATION				PHYSICAL CONDITION			
CERTIFICATE OF COMPLIANCE				CLEANLINESS/ PACKAGING			
TEST REPORTS				IDENTIFICATION/ MARKINGS			
MANUALS				QUANTITIES VERIFIED			
SPECIAL INSTRUCTIONS				DIMENSIONS VERIFIED			

STORAGE AND MAINTENANCE REQUIREMENTS:

MATERIAL COMPLIES WITH CONTRACTURAL REQUIREMENTS:

☐ YES

☐ NO

COMMENTS:

CONTRACTOR QC MANAGER / QC INSPECTOR:

DATE:

MBTA REPRESENTATIVE:

DATE:



## POST TENSIONING INSPECTION REPORT

CONTRACT NO.:	CONTRACTOR:	DATE:
DRAWING/REV.:	SUBMITTALS:	
IDENTIFICATION/DUCT NUMBER:		
PAY ACTIVITY:		

PLACEMENT	INSPECTION	CONTRACTOR	DATE	SURVEY		MBT A	DATE
				CON T	MBT A		
	ELEVATION OF DUCT						
	DUCT PROFILES SMOOTH & CORRECTLY SHAPED						
	DUCT JOINTS MATED & SEALED WITH DUCT TAPE						
	ALL HOLES IN DUCT REPAIRED						
	SECURED TO PREVENT DISPLACEMENT DURING CONCRETING						
	DRAINS INSTALLED AT LOW POINTS						
	VENTS INSTALLED AT HIGH POINTS						
	BEARING PLATES SECURELY ATTACHED, ELEVATIONS & CONFIGURATION						

TENSIONING	ANCHOR HEADS FREE FROM CORROSION						
	WEDGES FREE OF RUST & STEEL SHAVINGS						
	PRESTRESSING STEEL FREE FROM CORROSION AND PROTECTED						
	EACH DUCT HAS THE SAME HEAT/REEL NUMBER INSTALLED						
	TENDONS <input type="checkbox"/> ONE END						
	STRESSED SLOWLY <input type="checkbox"/> BOTH						
	WEDGES SEATED EVENLY						
	TAILS CUT BY SAW						
	EQUIPMENT ID						
	HEAT/REEL #						
	ELONGATED <input type="checkbox"/> INITIAL						
	MARK <input type="checkbox"/> FINAL						
	FINAL ELONGATION <input type="checkbox"/> ACTUAL						
	REQUIRED <input type="checkbox"/> REQUIRMENT						
	REQUIRED 5% MAX DIFF						
	FINAL TENSION						

REMARKS:

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## POST TENSIONING INSPECTION REPORT

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## STRUCTURAL STEEL INSPECTION REPORT

CONTRACT NO.:	CONTRACTOR:	DATE:
STRUCTURE:	WELDING CODE:	
DRAWING/REV.:	PAY ACTIVITY:	
SUBMITTAL:		
AREA/LOCATION/ELEVATION/GRID/BAY/ CONTRACT		

CONFIGURATION	ITEM	INSPECTION	CONTRACT OR	DATE	SURVEY		MBTA	DATE
					CONT	MBTA		
	1.	ANCHOR BOLTS						
	2.	BASEPLATE ELEVATION & BEARING						
	3.	BRIDGE BEARING TYPE & LOCATION						
	4.	COLUMNS/BENTS						
	5.	BEAMS/GIRDERS						
	6.	EXPANSION JOINTS						
	7.	STIFFENERS						
	8.	DECK INSTALLATION						
	9.	HIGH STRENGTH BOLTING						
	10.	EXPANSION ANCHORS						
	11.	WELD INSPECTION COMPLETE						
	12.	FINAL ELEVATION TOP OF STEEL						
REMARKS:								

# MBTA NONCONFORMANCE REPORT (NCR)

**Report No.:** \_\_\_\_\_

Contract No.: \_\_\_\_\_ Contract Name: \_\_\_\_\_

Reference Documents: ☐ Spec. \_\_\_\_\_ ☐ Dwg. \_\_\_\_\_ ☐ Other \_\_\_\_\_

**DESCRIPTION:**

*(Attach additional sheets as required)*

Originator:	Date	Res. Eng.:	Date:
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**DISPOSITION:**

☐ Accept as is ☐ Rework ☐ Remove & Replace ☐ Repair

*(Attach additional sheets as required)*

**Preventative Action:**

Design Consultant:	Date:	Resident Engineer	Date:
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Project Manager:	Date:	Director, QA:	Date:
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**Corrective / Preventive Action Complete**

Contractor:	Date:	Other:	Date:
CONTRACT NO. _____	QUALITY ASSURANCE _____	Resident Engineer:	MBTA _____
YEAR: _____	Date: _____	01400-21	REV 10/22

CONTRACT NO.  
YEAR

QUALITY ASSURANCE  
01400-22

MBTA  
REV 10/22